

REMARKS**I. Status of Claims:**

Reconsideration and allowance of claims pending in the application are requested.

Claims 1- 44 are pending in the subject application.

Claims 1-6, 9-17, 20-25 and 28-30 have been rejected under 35 USC 103 (a) as unpatentable over USPAP 2002/0120750 to M. Nidd, published August 29, 2002, filed February 1, 2002 (hereafter, Nidd) and further in view of USP 6,604,140 to J. E. Beck et al, issued August 5, 2003, filed September 23, 1999 (hereafter, Beck).

Claims 31-44 have been rejected under 35 USC 103 (a) as unpatentable over Nidd in view of Beck and further in view of USP 6,633,757 to R. Hermann et al , issued October 14, 2003, filed January 19, 2000 (hereafter, Hermann).

Claim 7-8, 18-19 and 25-327 have been rejected under 35 USC 103 (a) as unpatentable over Nidd, of record, Beck of record and further in of USPAP 2003/0006911 to B. Smith et al, published January 9, 2003, filed December 21, 2001 (hereafter, Smith) .

Independent claims 1, 12, 23, 31, 35, 39 and 42 have been canceled and rewritten as New Claims 45-51, respectively to clarify the claimed subject matter with respect to the cited art. All dependent claims have been amended to depend from their related New independent claim.

Applicant responds to the rejections, as follows:

II. Response to Claim Rejections – 35 USC 103 (a):**A. Paragraphs 2 and 3**

Applicant does not contest the factual inquiries of Graham:v Deere.

B. Paragraph 4:

New claims 45, 46 and 47 (formerly claims 1, 12 and 23, respectively) and their related dependent claims 2-6; 9-11; 13-17, 20-22; 24-25 and 28-30, respectively include features not disclosed or suggested in Nidd, of record in view of Beck, of record and overcome the rejection under 35 USC 103 (a), as follows:

1. New independent claims 45, 46 and 47 include features, as follows:

(i) conduct an inquiry to discover at least one nearby device in an ad-hoc network, an inquiry request including an indication that said at least one nearby device may include a middleware layer, said middleware layer comprising a middleware software for providing application and service discovery;

The Examiner contends that Nidd in Paragraphs 0005, 0007 and 0039 discloses the subject matter of feature i) except for a middleware layer which The Examiner contends is disclosed in Beck at column 2, lines 45-47. Applicant disagrees

First, Nidd does not respond with an inquiry result indicating a middleware layer. Nidd in Paragraph 0042 responds to an inquiry with a Frequency Hop Sequence package which provides information for establishing a connection. In contrast, applicant's specification at Paragraph 0049 indicates an inquiry result is modified to indicate a middleware layer.

Second, Beck at column 2, lines 45-55 does not supply the missing feature in Nidd relating to an inquiry result indicating a device may include a middleware layer for application and service discovery. The cited text simply describes the availability of a middleware layer that enables a device to use, discover and advertise services. The disclosure of middleware for use and discovering of advertising services does not teach or suggest an inquiry result identifying middleware software for executing application and service discovery in an ad hoc network, as described applicants' specification at Paragraph 0043

Third, there is no teaching or suggestion in Nidd and Beck, alone or in combination, that would enable a worker skilled in the art to provide an inquiry result indicating that a device may include a layer for executing application and service discovery. Beck only discloses middleware software is available to use, discover and advertise services. Nidd in Paragraph 0023 discloses a network device retrieving and listing service information from remote devices in a service list and forwarding retrieved information for listing in other devices in the network. The incorporation of a middleware layer in Nidd based on Beck would be redundant and in conflict with service listing disclosure of Nidd. .

(ii) in response to receiving the indication that said at least one nearby device may include a middleware layer,

a) confirm whether said at least one nearby device includes the middleware layer by requesting corresponding information from said at least one nearby device via the wireless short-range connection;

The Examiner contends that Nidd at Paragraph 0009 discloses the claimed subject matter. Paragraph 0009 discloses an inquiry message including a General Inquiry Access Code indicating the class of device (CoD) that should respond to the inquiry. The CoD describes the type of device responding to the inquiry. A middleware layer is not a device. Instead, a middleware layer defines a transport protocol that allows application to operate over Bluetooth links.

Accordingly, there is no disclosure in Paragraph 009 of a master device requesting confirmation of a middleware layer in a slave device after the master device has received information that the slave device contains a middleware layer, as described in applicant's specification at Paragraphs 0010 and 0049.

b) when said at least one nearby device includes the middleware layer:

b1) initiate wireless message exchange with said at least one nearby device to conduct middleware-based application and service information exchange for determining whether at least one target device supporting a required application or service is accessible in the ad-hoc network, the application and service information including distributed information;

The Examiner contends that Nidd at Paragraphs 0012; 0020 and 0060-61 describes the claimed subject matter. Paragraph 0012 describes a master device retrieving information from a remote or slave device using service discovery protocol. Paragraph 0020 describes performing service discovery in an ad hoc network to establish a connection between a master device and a remote device; obtain information related to services available from the remote device and provide the service information to other devices in the ad hoc network.

None of the Nidd Paragraphs disclose conducting middleware based application and service information exchange in an ad hoc network for determining whether at least one target device supporting a required application or service is accessible in the ad hoc network, the application and service information including distributed information, as described in applicant's specification at Paragraphs 0010 and 0031.

b2) wherein the distributed information comprises information exchanged and circulated in the ad-hoc network.

The Examiner contends that Nidd at Paragraphs 0042, 0043 and 0045 describes the claimed subject matter. Paragraphs 0042, 0043 and 0045 describe network devices retrieving desired service information from other network devices. There is no disclosure or suggestion in the cited Nidd Paragraphs of devices exchanging and vice versa information amongst other devices, as described in applicant's specification at Paragraph 0022.

Summarizing, Nidd in view of Beck fail to describe or suggest features recited in claims 45, 46 and 47 as follows:

1. An inquiry result indicating the presence or absence of a middleware layer in an inquired device.

2. A wireless short-range connection establishment performed with the inquired device in response to said inquired device indicating the presence of a middleware layer.

3. The presence of the middleware layer in said inquired device confirmed by requesting corresponding information from the inquired device via the wireless short-range connection

4. Application and service discovery protocols established in a device via the middleware layer for execution before the establishment of a data connection.

5. Middleware based application and service information exchange between nearby device for determining whether at least one target device supporting a required service is accessible in an ad hoc network.

6. Distributed information exchanged and circulated amongst devices in an ad hoc network.

The cited art, Nidd in view of Beck, alone or in combination, fails to describe or suggest at least the features 1-6 above, described in claims 45, 46 and 47 for the reasons indicated above. Claims 45, 46 and 47 describe patentable subject matter under 35 USC 103 (a) Entry and allowance of claims 45, 46 and 47 are requested.

2. Claims 2 and 13 have been rejected under 35 USC 103 (a) based on Nidd in view of Beck, the cited art. Claims 2 and 13 depend from independent claim 45 and are patentable over the cited art on the same basis as independent claim 45.:

3. Claims 3, 14, 24. - The Examiner contends that Nidd at Paragraphs 42-43, 45 describes the claimed subject matter. Applicant can find no disclosure in the cited Paragraphs of distributed information records (see Applicants specification at Paragraph 10). Nor do the service records described in Nidd at Paragraph 0044 describe distributed information records. In any event, Claims 3, 14 and 24 depend from independent claim 45 or 47 and are patentable over the cited art on the same basis as independent claim 45 or 47:

4. Claims 4, 15.- The Examiner contends that Nidd at Paragraphs 0042-0043, 0045 and 0055 describe the claimed subject matter. Claims 4 and 15 depend from independent claim 45 and 46, respectively and are patentable over the cited art on the same basis as independent claim 45 or 46.

5. Claims 5 and 16 –. Applicant can find no disclosure in the cited Paragraphs of the application information described in claims 5 and 16 which is supported in applicant's specification at Paragraph 0044 and 0045. In any event, Claims 5 and 11 depend from independent claim 45 and are patentable over the cited art on the same basis as independent claim 45.

6. Claims 6, 17, and 25 have been rejected under 35 USC 103 (a) based on Nidd in view of Beck, the cited art . Claims 6, 17, and 25 depend from independent claim 45 or 46 or 47

and are patentable over the cited art on the same basis as the independent claim from which they depend.

7. Claims 9 and 28 - The Examiner contends that Nidd at Paragraphs 0012, 0020 and 0042 describe the claimed subject matter. The cited Paragraphs describe a list of services associated with a server. Applicant can find no disclosure in the cited Paragraphs that describe exchanged information that at least one nearby device support, as described in applicant's specification at Paragraph 0022. In any event claims 9 and 28 depend from independent claim 45 or 47 and are patentable over the cited art on the same basis as the independent claim from which it depends.

8. Claim 10 - The Examiner contends that Nidd at Paragraphs 0012, describes the claimed subject matter. The cited Paragraphs describes a list of services associated with a server . Applicant can find no disclosure in the cited Paragraph that describe exchanged information that at least one nearby device support, as described in applicant's specification at Paragraph 0022. In any event claim 10 depends from independent claim 45, and is patentable over the cited art on the same basis as independent claim 45 from which it depends.

9. Claims 11, 22 and 30 – The Examiner contends that Nidd at Paragraphs 0005; 0008; 0013 and 0044 describes the claimed subject matter. The cited art discloses a device (without a middleware layer) executing a standard SDP protocol to retrieve information from a nearby device. The cited Paragraphs do not disclose a processor in a device including a middleware layer disposed to establish a link with a target device and access a required service. In any event, claims 11, 22 and 30 depend from independent claim 45 or 46 or 47 , and are patentable over the cited art on the same basis as the independent claim from which it depends.

10. Claim 20 – The Examiner contends that Nidd at Paragraphs 004 describe a SDP protocol downloading service records from a service list stored in a server. Thee is no disclosure in the cited Paragraphs of downloading exchanged information between 20 depends from independent claim 46, and is patentable over the cited art on the same basis as independent claim 46 from which it depends.

11. Claims 21 and 29 have been rejected under 35 USC 103 (a) based on Nidd at Paragraph 0062. Claims 21 and 29 depend from independent claim 46 or 47 and are patentable over the cited art on the same basis as the independent claim from which it depends :

C. Paragraph 5:

Claims 48, 49 and 50 (formerly Claims 31, 39 and 42, respectively) and related dependent claims 32-38, 40-41 and 43-44 include features, not disclosed or suggested in Nidd, of record, in view of Beck, of record and Hermann, and overcome the rejection under 35 USC 103 (a), as follows:

1. New Claim 48 (formerly claim 31):

Claim 48 includes all the features of New claim 45 plus additional features relating to (i) a distributed database associating at least one service to at least one device, and (ii) distributed information comprising information exchanged between devices. The Examiner contends that Nidd at Paragraph 0013 and Herman at column 4, lines 36-52 describe maintaining a distributed database. Paragraph 0013 discloses a service discovery user application in a local device interfacing with a service discovery client to send inquiries and receive service inquiry response from a service discovery server to obtain service records. Herman discloses a device maintains (i) a record with information about services and associated identifiers and (ii) a list of identifiers about service-providing devices. The list of identifiers are compared to an associated service as being in adjacency of a first device. Neither Nidd nor Hermann, alone or in combination disclose a data base of distributed information associating at least one service to at least one device in an ad hoc network and distributed information comprising information exchanged amongst devices. In any event, claim 48 is patentable over Nidd and Beck by the failure of the cited art to disclose the features of New claim 45 . Applicant has not found nor has the Examiner identified any features in Hermann providing the features in Nidd and Beck missing in New claim 45.

New claim 48 describes subject matter not shown or suggested in Nidd, Beck and Herman for the reasons indicated above. Entry of New claim 48 and allowance thereof are requested

2. New Claim 49 (formerly claim 35) includes all the features of New claim 45: plus further describing the content of distributed information recited in claim 46. The Examiner contends that Nidd at Paragraphs 0042-0043 and 0045 describes the content of the distributed information. The cited Paragraphs describe a local device connecting to a remote device using the Bluetooth protocols to retrieve service information from the remote device. The service

information is required to configure connection to the remote device. In contrast, applicant's distributed information includes further information in addition to connection detail. The further information includes a State field indicating the state of the distributed nature of the application (e.g., whether the application is installed, currently running, or is configured to allow auto-starting). Version and Capabil. (Capability) fields indicating the role played by the application (e.g., client-server role, and language choices). See applicant's specification at Paragraph 0045. These fields help a middleware layer to decide whether a match is possible with another application. Nidd, Beck and Hermann all fail to describe or suggest distributed information described by applicant.

New claim 49 describes subject matter not shown or suggested in Nidd, Beck and Herman for the reasons indicated above. Entry of New claim 49 and allowance thereof are requested.

3. Claim 50 (formerly claim 39), written in program product format, includes all the features of New claim 45 plus describing program code for accessing a distributed information database to determine whether at least one target device supports a required application or service accessible to an ad hoc network. Applicant has demonstrated in the consideration of New claim 49 that the Nidd, Beck and Hermann all fail to describe distributed information.

New claim 50 describes subject matter not shown or suggested in Nidd, Beck and Herman for the reasons indicated above. Entry of New claim 50 and allowance thereof are requested.

4. Claim 51 (formerly claim 42) includes all the features of New claim 45 plus (i) maintaining a distributed database and (ii) exchanging distributed information amongst network devices. Applicant has demonstrated in the consideration of New claims 48 and 49 that Nidd, Beck and Hermann all fail to describe maintaining a distributed database and exchanging distributed information amongst ad hoc network devices.

New claim 51 describes subject matter not shown or suggested in Nidd, Beck and Herman for the reasons indicated above. Entry of New claim 51 and allowance thereof are requested.

5. Claims 32, 36, 40 and 43. – The Examiner contends that Hermann at column 4, lines 36-37 and column 5, lines 1-10 describe the claimed subject matter. The cited text discloses a device maintains (i) a record with information about services and associated identifiers and (ii) a list of identifiers about service-providing devices. The list of identifiers are compared to an associated service as being in adjacency of a first device. Hermann fails to disclose or suggest a data base of distributed information associating at least one service to at least one device in an ad hoc network and distributed information comprising information exchanged amongst devices. . In any event claim 32, 36, 40 and 43 depends from independent New claim 48 or 49 or 50 or 51 and are patentable over the cited art on the same basis as independent claim from which it depends.

6. Claims 33 and 37. – The Examiner contends that Nidd at Paragraphs 0043-0044 describes the claimed subject matter. The cited Paragraphs describe a local device connecting to a remote device to retrieve service information from a database for purposes of establishing a connection with the remote device. Applicant has previously demonstrated in the consideration of New claim 49 there is no disclosure in Nidd of a distributed database including a reference to a required service and an association between a required service and a target device. Nidd fails to disclose or suggest the subject matter of claims 33 and 37. In any event claims 33 and 37 are patentable over Nidd on the same basis as claim 48 or 49, respectively from which they depend.

7. Claim 34, 38, 41 and 44. – The Examiner contends that Herman at column 5, lines 9-15 describes the claimed subject matter. Applicant understands the cited text to disclose declining a link connection if the connection is not within the adjacency of a requesting device. In contrast, applicant's specification at Paragraph 0013 declines a connection if a required service is not included in a distributed database. In any event claims 34, 38, 41 and 44 are patentable over Nidd on the same basis as claim 49 or 50 or 51, respectively from which they depend.

D. Paragraph 6:

Claims 7-8, 18-19 and 26-27 include features not disclosed or suggested in Nidd, of record; Beck, of record and Smith, of record and overcome the rejection under 35 USC 103 (a), as follows

1. Claims 7, 18 and 26:

Claims 7, 18 and 24 are patentable over Nidd, Beck and Smith on the basis of independent New claims 45 or 46 or 47, respectively, which previously have been distinguished from the cited art. Withdrawal of the rejection and allowance of claims 7, 18 and 24 are requested.

2. Claims 8, 19, and 27:

Claims 8, 19 and 27 are patentable over Nidd, Beck and Smith on the basis of independent New claims 45 or 46 or 47, respectively, which previously have been distinguished from the cited art. Withdrawal of the rejection and allowance of claims 8, 19 and 27 are requested.

CONCLUSION

Independent Claims 1, 12, 23, 31, 35, 39 and 42 have been canceled and replaced with New independent claim 45-51. Applicant has distinguished New Claims 45 – 51 and supported their patentability with respect to the Nidd, Beck, Hermann and Smith, the cited art. .Based on the foregoing amendments and remarks, Applicants respectfully request reconsideration of claims 45-51, 2-11, 13- 22, 24-30, 32-34, 36-38 40, 41, and 43-44 ; allowance and passage to issue of this application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. **13-4500**, Order No. 4208-4148. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is

hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. **13-4500**, Order No. 4208-4148. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
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